

B2 25. The paper handler of claim 24, wherein the vacuum draws air through the transition.

B3 27. The paper handler of claim 16, wherein the acceleration conveyor comprises a pinning structure upstream of the sensor.

59. A method of handling paper comprising the steps of:

B4 feeding paper to an acceleration conveyor; and

aiding transport of the paper across a transition between the acceleration conveyor and a product conveyor by;

creating a vacuum; and

drawing the paper across the transition.

MARKED UP VERSION OF THE CLAIMS

16. (Amended) A paper handler, [adapted for use with a device, the paper handler] comprising:

an acceleration conveyor [adapted to feed] for feeding paper [to the device] at a predetermined speed;

a sensor located directly above the acceleration conveyor to sense a parameter of the paper located upon the acceleration conveyor;

a product conveyor downstream of the acceleration conveyor[;], the product conveyor being oriented to carry paper in the same direction as the acceleration conveyor;

✓ a transition between the acceleration ^{LAB}belt conveyor and the product ^{LAB}belt conveyor; and

a blowing system operatively positioned to facilitate carrying the paper across the transition at a speed substantially equal to the predetermined speed.

17. (Amended) The paper handler of claim 16, [wherein the device is a sorter comprising a sensor and an ejector, wherein the] further comprising an ejector [is] downstream of the sensor and operably positioned to eject targeted paper crossing the transition.

25. (Amended) The paper handler of claim [16] 24, wherein the vacuum draws air through the transition.

27. (Amended) The paper handler of claim 16, wherein the acceleration conveyor comprises a pinning structure upstream of the [device] sensor.

59. (Amended) A method of handling paper comprising the steps of:

feeding paper to an acceleration conveyor; and

aiding transport of the paper across a transition between the acceleration conveyor and a product conveyor[.] by:

creating a vacuum; and

drawing the paper across the transition.

COMMENTS **THE 35 U.S.C. §112 REJECTION**

The Examiner had rejected claim 16 and those claims dependent thereon because the Examiner objected to the language "adapted for" and "adapted to" in claim 16. Claim 16 has been amended to delete the objectionable language.

THE SUBSTANTIVE REJECTIONS

The Examiner has rejected claims 16-32 and 59-64 under 35 U.S.C. §103 based upon U.S. Patent No. 6,003,681 to Wilbur et al. in view of U.S. Patent No. 5,445,369 to Golicz et al.

First it is noted that the secondary reference to Golicz et al. is cited only for its additional teaching of a "pinning structure 70 and 72". A pinning structure is relevant only to claims 27 and 28. Thus with regard to the remainder of the claims the 35 U.S.C. §103 rejection appears to be based solely upon the Wilbur et al. 6,003,681 patent and will be so addressed.

With regard to the Wilbur et al. teachings, the Examiner has stated his rejection as follows:

Wilbur et al. disclose an apparatus and a method for handling light-weight and flat articles comprising an acceleration conveyor 18 (fig. 2); a product conveyor (unnumbered conveyor in area A) downstream of the acceleration conveyor; a transition (unnumbered) between the acceleration and product conveyor; and a blowing system 12 operatively positioning to facilitate to carry the articles across the transition. Wilbur et al. further have a sorter 28 and 30 comprising a sensor 88 or 90 and a rejector 114; and the product conveyor having a transition end proximate the transition and a curved transition plate (unnumbered plate at the left). However, the articles of Wilbur et al. are not papers and Wilbur et al. do not have a pinning structure.

That rejection, as applied to the amended claims, is respectfully traversed for the following reasons.

Although there are some superficial similarities between the present invention and that disclosed in the Wilbur et al. patent, a careful review of the two disclosures shows them to be directed to very different systems.

The present invention as further defined in amended claim 16 and as perhaps best illustrated in Fig. 12, has an acceleration conveyor 86 and a product conveyor 102 which are both oriented to carry paper in the same direction from right to left as seen in Fig. 12. There is a transition space 156 between the downstream end of acceleration conveyor 86 and the upstream end of product conveyor 102 which must be traversed by sheets of paper flying through the air from the acceleration conveyor 86

to the product conveyor 102. A sensor 23 is located directly above the acceleration conveyor 86 and it senses a parameter of the paper located upon the acceleration conveyor 86. The blowing system of the present invention facilitates carrying the paper across the transition at a speed substantially equal to the speed at which it was traveling on the acceleration conveyor 86 at the time it is examined by the sensor. This facilitates the location of and ejection of unwanted paper as it goes across the transition zone 156.

The Wilbur et al. system, on the other hand, is very different. The structure which the Examiner has identified as his "product conveyor" is the "unnumbered conveyor in area A" as seen in the lower right corner of Fig. 2 of Wilbur et al. That conveyor, however, does not convey paper in the same direction as the acceleration conveyor, but instead is oriented at a 90° angle to the acceleration conveyor of Wilbur et al. Furthermore, the Wilbur et al. system does not examine or sense a parameter of the paper or other article while the article is located upon the acceleration conveyor, but instead the Wilbur et al. system very specifically examines and sorts the articles while they are in the air passing through the transition zone. See the line of sight represented by the dashed lines 92 and 94 in Fig. 2 of Wilbur et al. which very clearly show that the point of examination of the articles is after the articles have passed off of the downstream end of the acceleration belt.

Thus, it is respectfully submitted that amended claim 16 is not obvious in view of the Wilbur et al. reference because the Wilbur et al. reference does not show or suggest at least the following features of amended claim 16:

1. Wilbur et al. does not suggest the use of the sensor located directly above the acceleration conveyor to sense the parameter of an article located upon the acceleration conveyor;

2. Wilbur et al. does not teach the use of a product conveyor which conveys paper or other articles in the same direction as the acceleration conveyor; and

3. Wilbur et al. does not deal with paper and does not teach the importance of carrying paper across a transition at a speed substantially equal to the speed of the acceleration belt. Such a feature would not be important to Wilbur et al. who both senses and sorts his articles after they have already been launched off of the acceleration belt. Thus changes in speed relative to the acceleration belt would not be important to Wilbur et al. With the present invention, however, where the article is detected while moving on the acceleration belt, it is important to be able to predict the subsequent position of that article, and thus it is important to regulate the speed of the article relative to the acceleration belt, even after the article leaves the acceleration belt and is flying through the transition zone.

The secondary reference to Golicz et al. does not in any way supply any of these missing features. Golicz et al. is discussed further below, particularly with regard to claims 27 and 28.

Turning now to the various claims dependent from claim 16, it is noted that they should all be allowed for the same reasons as given above for claim 16. Additionally, there are several issues worthy of note in some of the dependent claims, which issues have not been fully addressed by the Examiner.

For example, claims 18, 19, 24, 25 and 29 all require that the blowing system create a vacuum downstream of the transition zone. Wilbur et al. does not suggest anything about creating a vacuum downstream of the transition zone. Instead, Wilbur et al. uses exactly the opposite approach, namely the addition of positive pressure upstream of the transition zone. Thus where the system described in certain ones of the present claims "sucks" the air through the transition zone, the Wilbur et al. system blows the air through the transition zone.

Furthermore, claims 20 and 21 are directed to the use of a transition plate above the transition end of the product conveyor. This transition plate 158 is best seen in Fig. 12. As claim 21 requires, the transition plate is "curved to conform to the product conveyor transition end". All the Examiner has said with regard to such a feature is to make the unexplained and unsupported statement that "the product conveyor having a transition end proximate the transition and a curved transition plate (unnumbered plate at the left)." With respect, Applicant cannot understand what unnumbered plate the Examiner might be referring to, but there certainly is nothing shown or suggested in Wilbur et al. that is analogous to the curved transition plate 158 which is curved to conform to the product conveyor transition end. As noted at page 27 lines 8-12 of the specification, this transition plate functions to prevent paper from falling back off the transition end of the product conveyor. No such function is in any way shown or suggested by the Wilbur et al. reference.

Finally, with regard to claims 27 and 28, these claims both include a pinning structure comprised of the rotary feeder 96 seen in Fig. 12 which contacts the

acceleration belt.

The Examiner has tried to analogize the feature 70 and 72 of Golicz et al. to this pinning structure, but as the following explanation will show there is absolutely no similarity between those structures.

It is apparent upon reviewing the Golicz et al. disclosure that it is directed to a very different type of paper conveyor than is the present invention. The Golicz et al. device utilizes a belt made up of a plurality of very narrow parallel belt portions 32, as seen in Figs. 3 and 4 of Golicz et al., with spaces between the belt portions which allow a flow of air downward through the belt portions as indicated by the arrows in Fig. 2 of Golicz et al. The rollers 70 and 72 of Golicz et al are "pinch rollers" which grasp the paper on either side of a gap across which it is being transmitted to insure a firm controlled movement of the paper across the gap. The Golicz et al. conveyor is utilized in photocopy machines, optical character reading machines, and the like.

The present invention, on the other hand, is directed to a paper conveyor designed for use in a waste paper sorting system. The present invention uses a solid very wide belt on the order of 4' wide. This solid belt does not have an air flow therethrough like the Golicz device, but instead relies on the formation of a suction effect which causes the paper to cling to the belt once it is pinned against the belt by the rotary pinning structure. No such function is in any way shown or suggested by Golicz et al., nor would the structure of Golicz et al. be capable of providing such a function. Even more significantly, there is absolutely no reason for combining the "pinch rollers" of Golicz et al. with the system of Wilbur et al., and the Examiner has

not even begun to explain how such a combination would be made.

Accordingly, it is respectfully submitted that independent claim 16 and all those claims dependent therefrom should be allowed for the reasons set forth above.

INDEPENDENT CLAIM 59

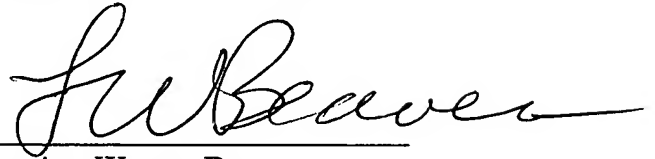
Turning now to claims 59 and 61-64, claim 59 has been amended to incorporate the features from original claim 60 which required that when the paper is being transported across the transition between the acceleration conveyor and the product conveyor it is aided across that transition by "creating a vacuum; and drawing the paper across the transition".

As discussed above with regard to claims like claim 18, nothing in either the Wilbur or Golicz et al. disclosures suggest the use of a vacuum downstream of the transition zone. Accordingly, claim 59, and claims 61-64 dependent therefrom should be allowed over the cited references.

CONCLUSION

In summary, it is believed that the arguments and amendments set forth above are sound, and accordingly reconsideration of the application is requested along with an early indication of the allowance of claims 16-32, 59 and 61-64.

Respectfully submitted,



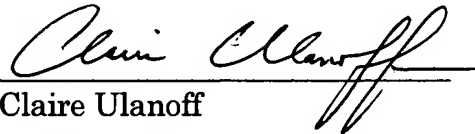
Lucian Wayne Beavers
Registration No. 28,183
WADDEY & PATTERSON
A Professional Corporation
Customer No. 23456
ATTORNEY FOR APPLICANT

This attorney is located at our Nashville, Tennessee office and can be contacted directly at:

Lucian Wayne Beavers
Waddey & Patterson
414 Union Street, Suite 2020
Bank of America Plaza
Nashville, TN 37219
(615) 242-2400

CERTIFICATE OF FIRST CLASS MAILING

I hereby certify that this AMENDMENT is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, September 9, 2002.



Claire Ulanoff

9-9-02

Date